Country Risk, Exchange Rates and Economic Fluctuations in Emerging Economies

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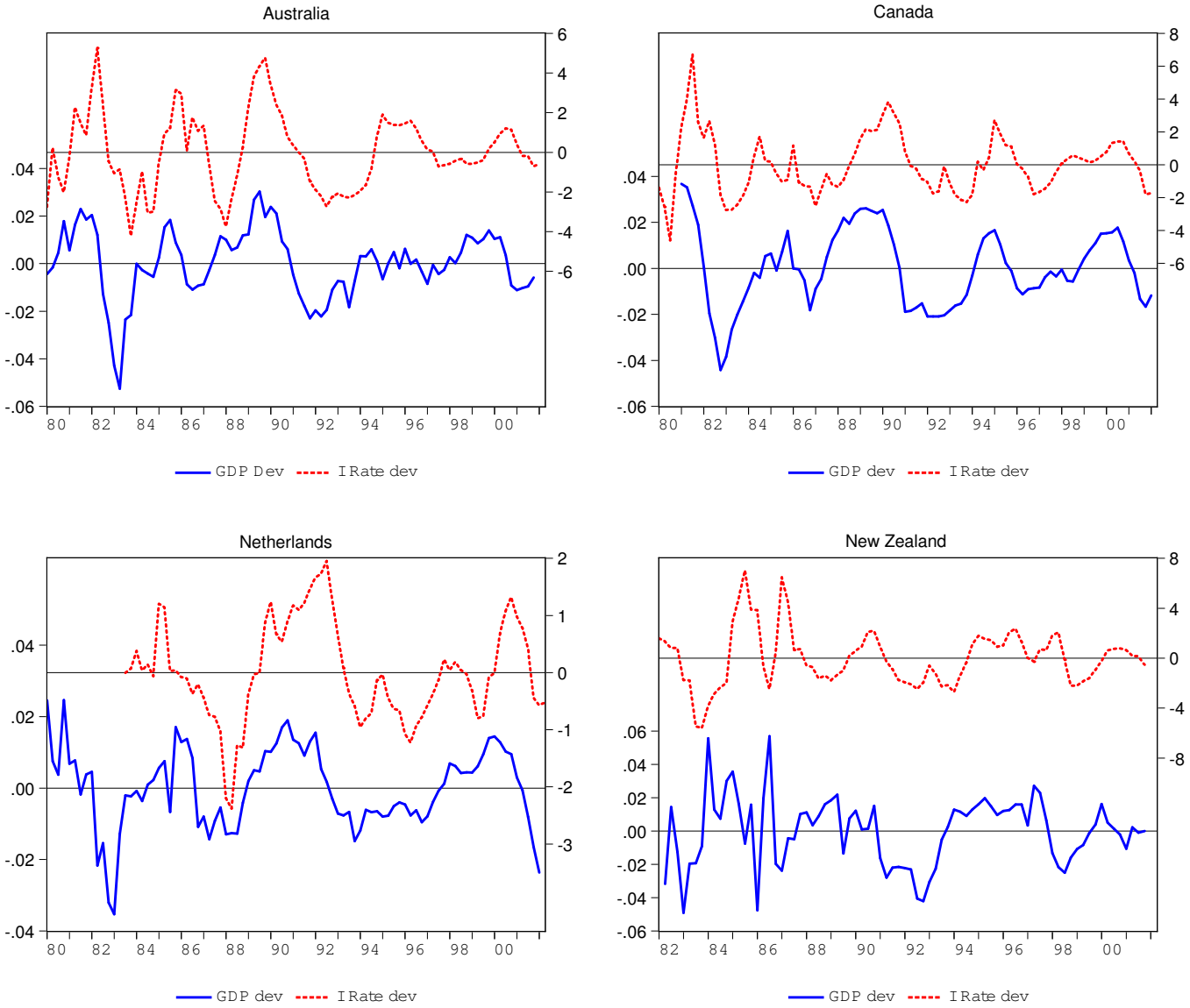
1. In emerging economies, output and the cost of foreign borrowing move in opposite directions (Neumeyer-Perri, 2004)
2. In contrast, in advanced economies the real interest rate is **acyclical** or **mildly procyclical**

Thus, for emerging economies, foreign credit becomes more expensive when they need it the most

Output and Interest Rates in Emerging Economies

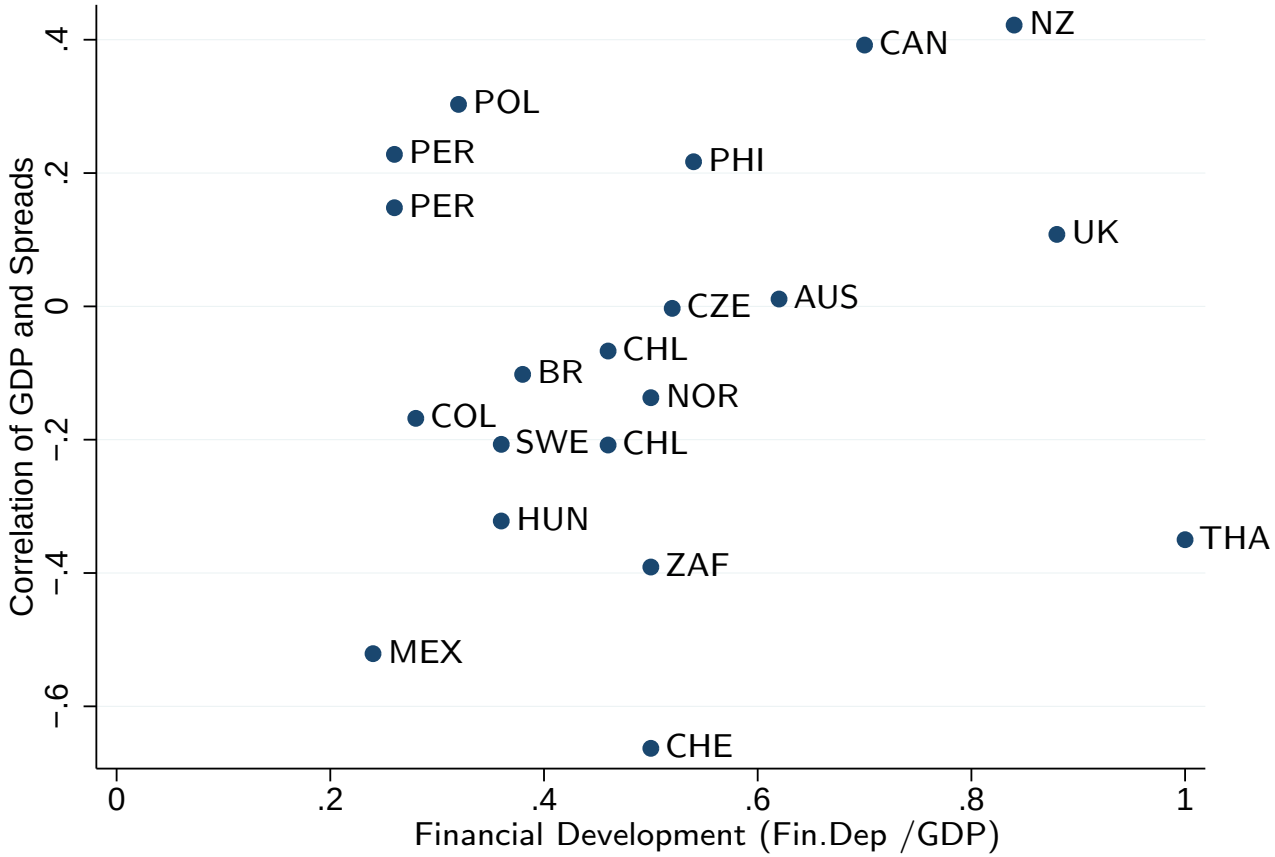
Source: Based on Neumeyer and Perri (2004)

Output and Interest Rates in Developed Economies

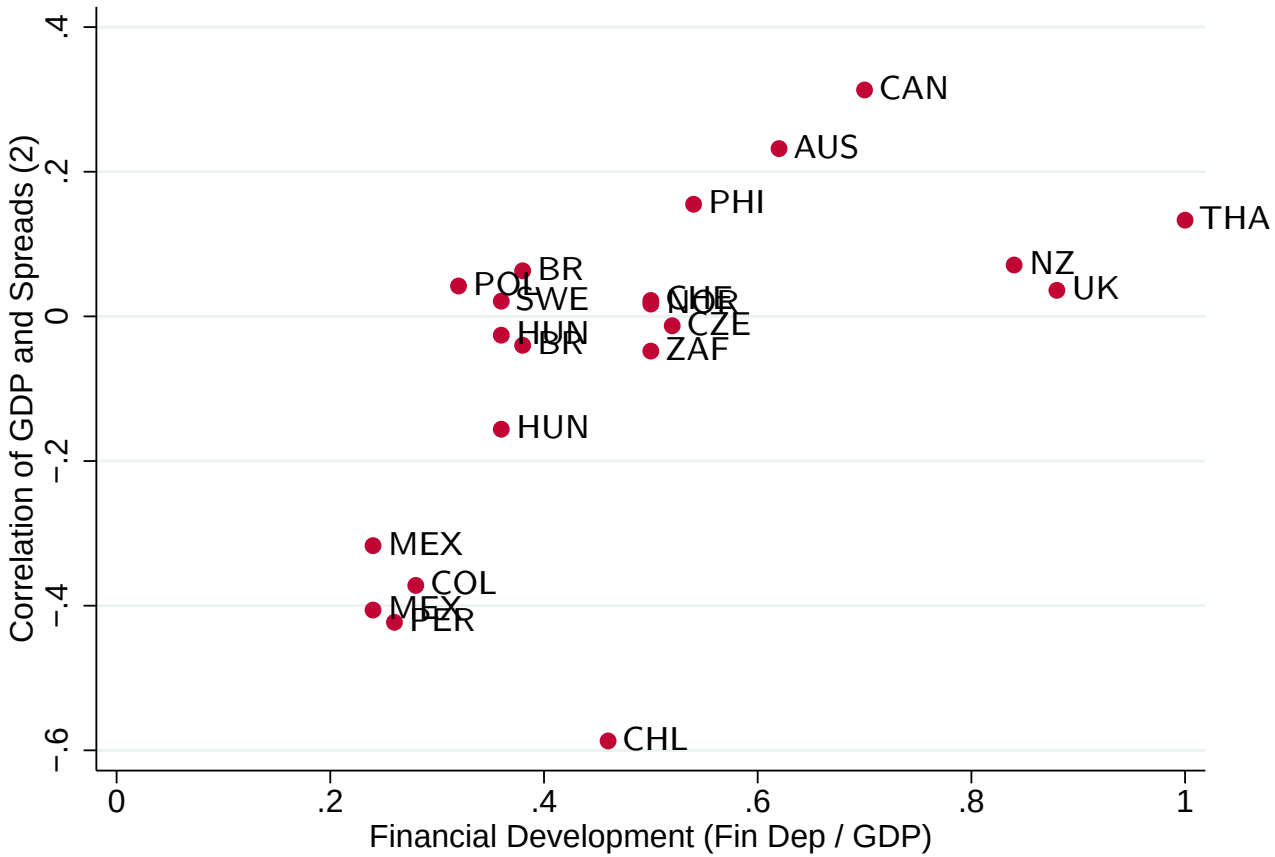


Source: Based on Neumeyer and Perri (2004)

- Much of the action in interest rates is due to movements in country spreads (Neumeyer & Perri, 2004; Uribe & Yue, 2004)
- And indeed, higher spreads are associated with lower output



Source: Authors' computations.
Note. Spreads are the difference of 90d corporate lending rates minus deposit rates (IFS, local central banks)



Source: Authors' computations.
Note. Spreads for emerging and developed economies are EMBI (C-EMBI) and OECD-MEI (90D corporate)-Lending(local CB), respectively-

- Interest rates are **procyclical** in Australia & **countercyclical** in Chile
- High interest rates are associated with real exchange rate **appreciation** in Australia & **depreciation** in Chile

Our Conjecture in a nutshell

- Net worth effects and the currency composition of debts may imply that aggregate demand responds very differently to exchange rate fluctuations in advanced economies vis a vis developing ones

- We develop a model of the joint determination of
  1. Interest rates
  2. Spreads
  3. Exchange Rates
  4. Business cycle fluctuations

  which is consistent with the facts just discussed
- Leading examples are Céspedes, Chang & Velasco (2004); Gertler, Gilchrist & Natalucci(2003) and Devereux, Lane & Xu(2004)
- With respect to CCV, we extend the model to confront some these data quantitatively so that it is useful for actual policy analysis

- A version of CCV (2004)
- Small open economy populated by workers and entrepreneurs
- Final (consumption and investment) goods are aggregates of home produce and imports
- No nominal rigidities
- capitalists borrow in the world market subject to agency problem

Domestic Production

$$\begin{aligned} Y_t &= AK_t^{\alpha} L_t^{1-\alpha} \\ W_t L_t &= (1-\alpha) P_t Y_t \\ R_t K_t &= \alpha P_t Y_t \end{aligned}$$

Capital Production

- Production function for new capital

$$K_{t+1} = \Gamma\left(K_t, I_t\right)$$

- so the price of installed capital is given by

$$Q_t^I = Q_t^K \Gamma_2\left(K_t, I_t\right)$$

Financial Frictions

- As BGG (2000) foreign borrowing is subject to a costly state verification problem
- The typical entrepreneurs' flow budget constraint is

$$P_t N_t + S_t D_t = Q_t^K K_{t+1}$$

- The return to investment is equal to the cost of funds, inclusive of risk premium

$$\frac{E_t\left[K_{t+1}\left(R_{t+1}+P_{t+1}^K\right)/S_{t+1}\right]}{Q_t^K K_{t+1}/S_t} = \left(1+\rho_{t+1}\right)\left(1+\eta_{t+1}\right)$$

- The risk premium is increasing on the ratio of total investment to net worth

$$(1 + \eta_{t+1}) = \Psi \left(\frac{Q_t^K K_{t+1}}{P_t N_t} \right)$$

- And (aggregate) net worth is given by the return to past investment minus debt service (inclusive of bankruptcy costs)

$$P_t N_t = \nu \left[(1-\phi_t)(R_t + P_t^K)K_t - (1+\rho_t)S_t D_t \right]$$

Workers

- They can borrow and lend at the prevailing world interest rate
- Endogenous Time Preference as in Mendoza (1991)

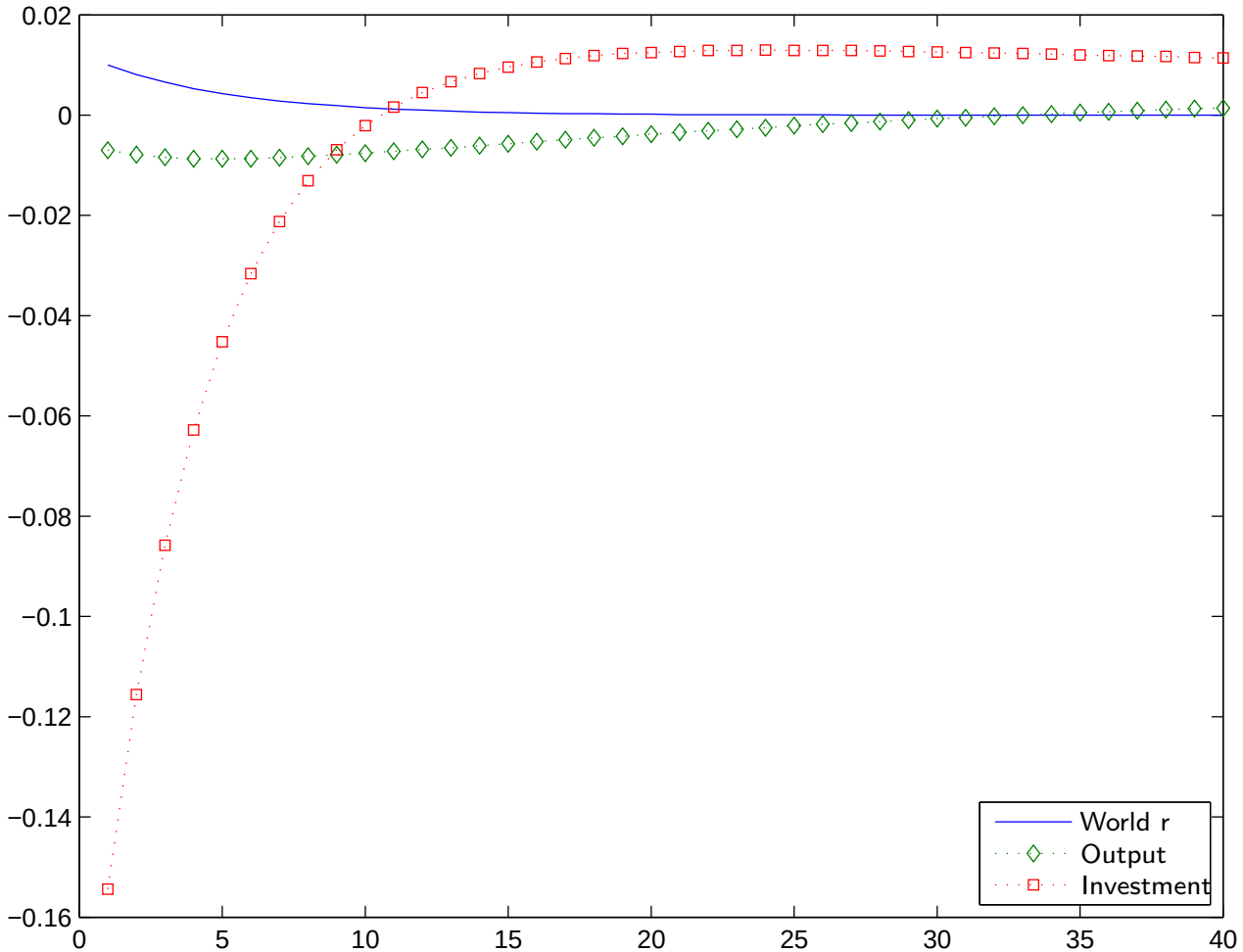
Parametrization

- We calibrate the model to data from Chile and Australia

Differences (main)

1. A key difference is μ: elasticity of risk premium w.r.t. the $\frac{Investment}{NetWorth}$ ratio (0.12 for Chile & 0.06 for Australia)
2. Share of imported goods in the production of investment goods (50% in Chile and 25% in Australia)

Figure: Chile: Adjustment path to interest rate shock



Source: Authors' computations

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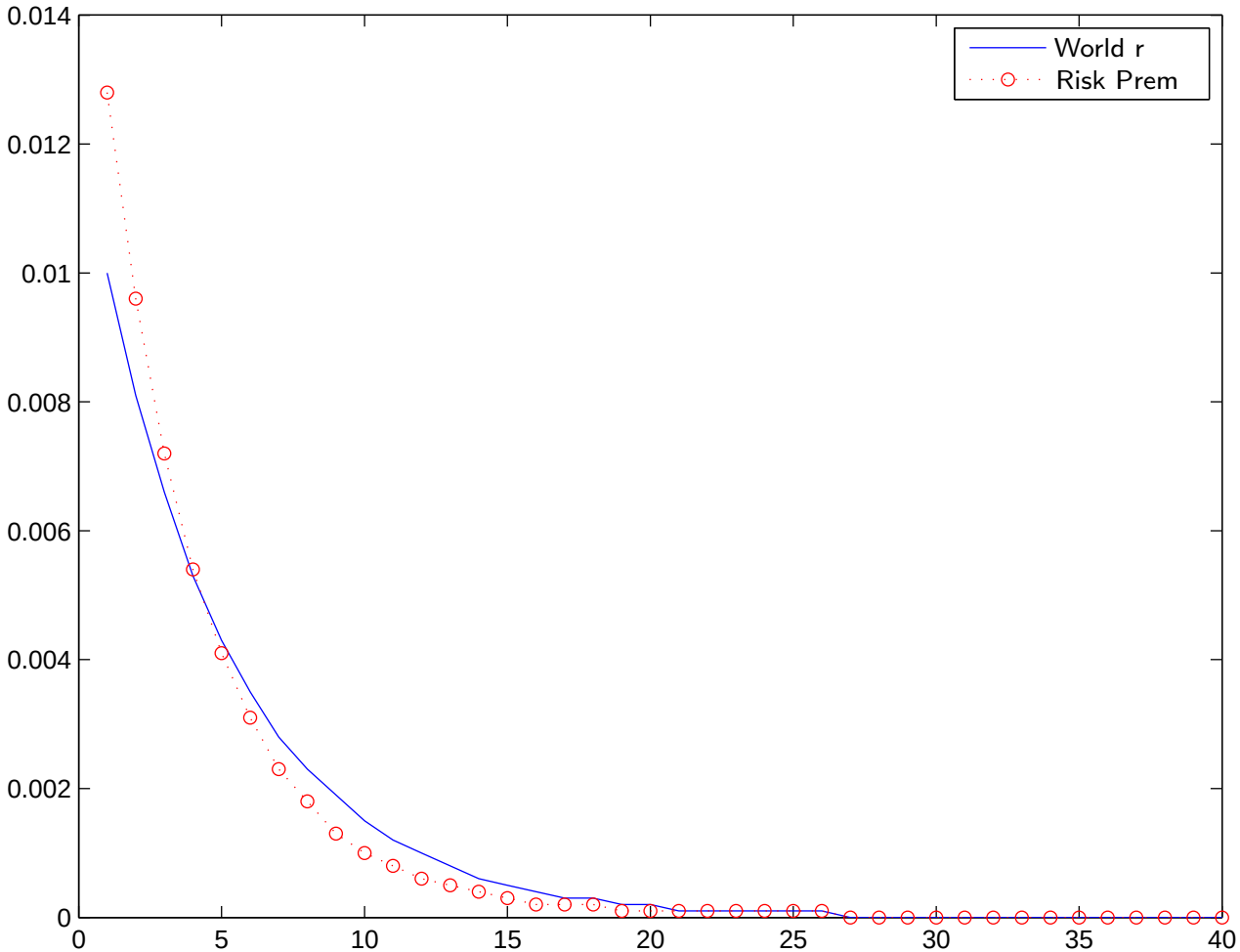

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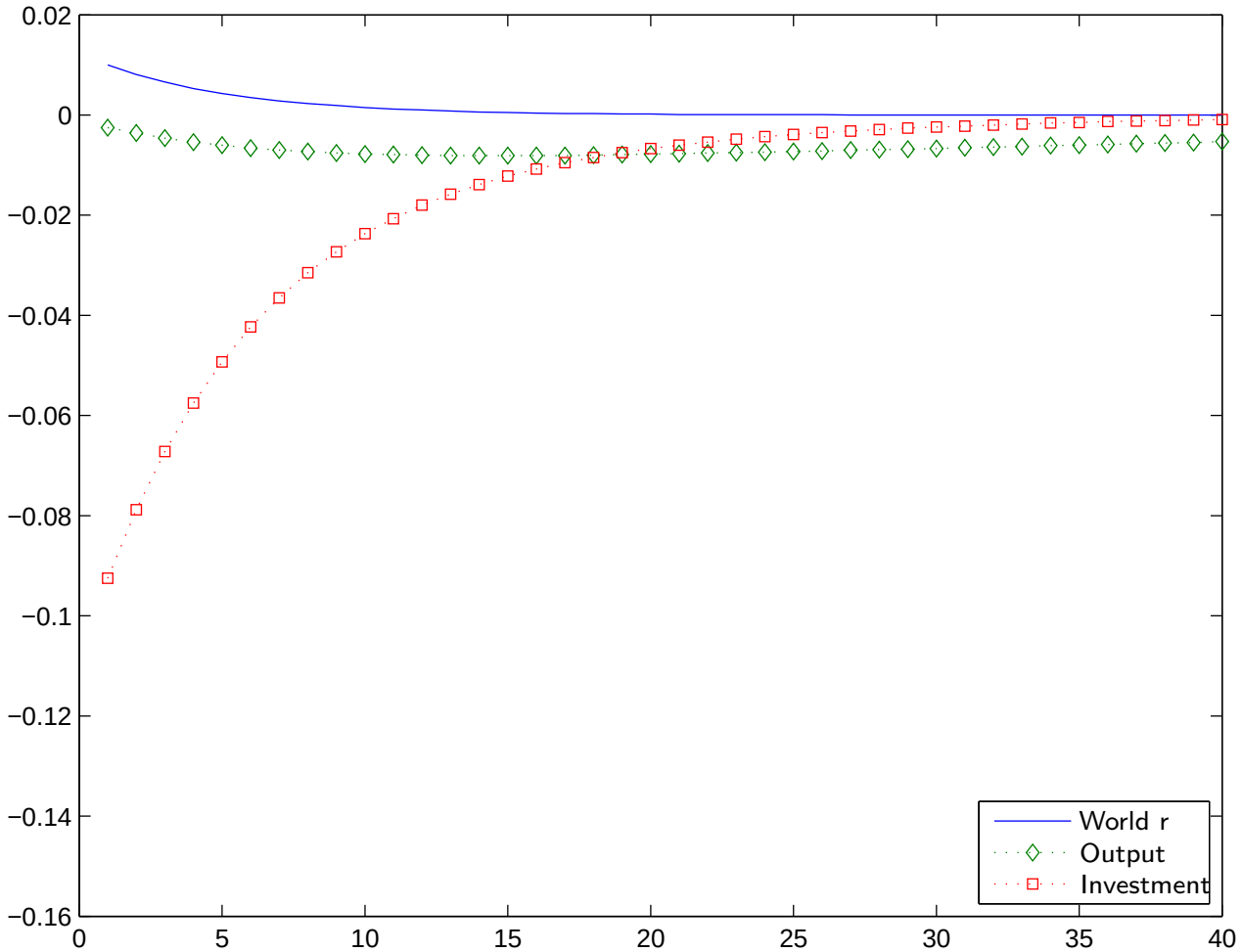

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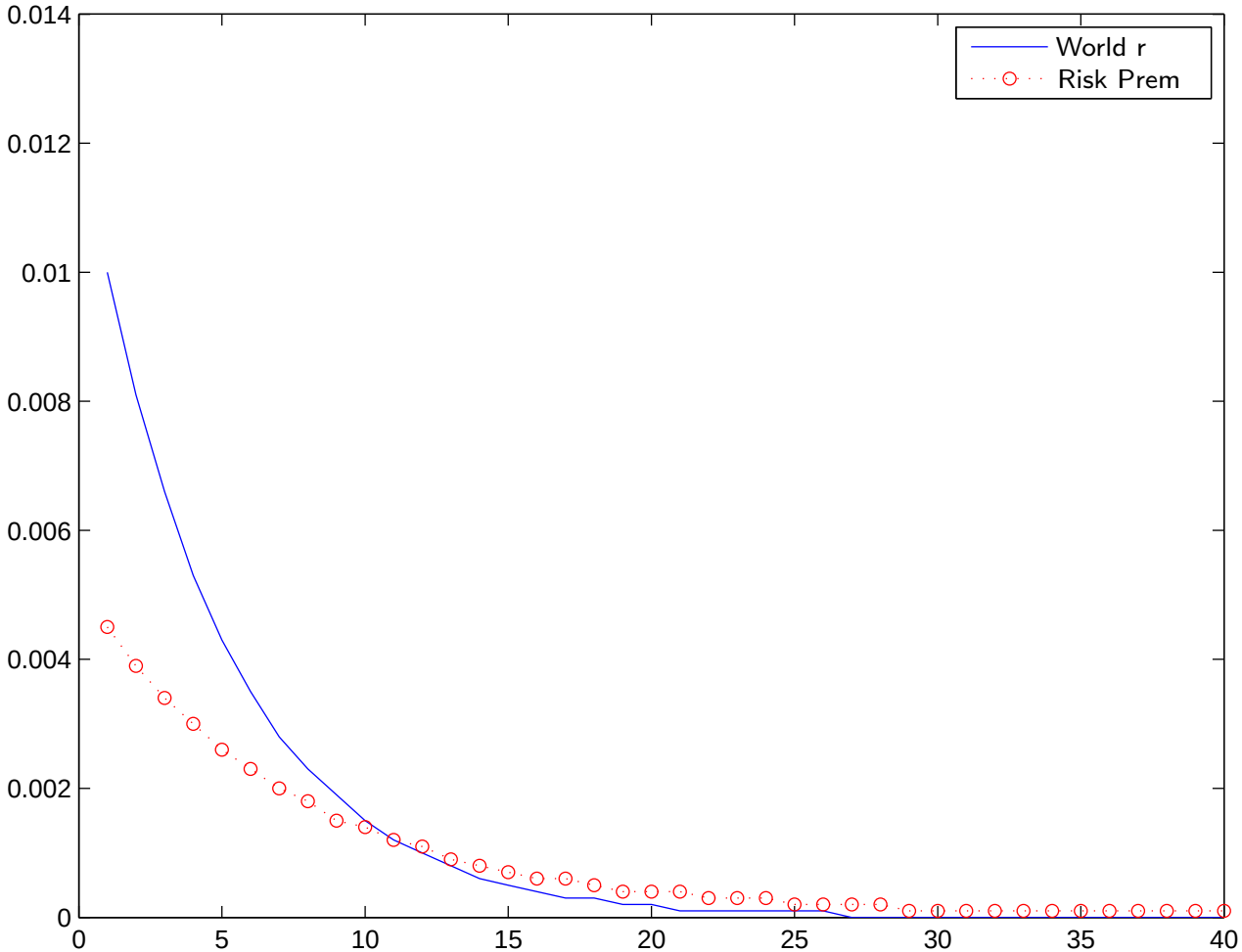
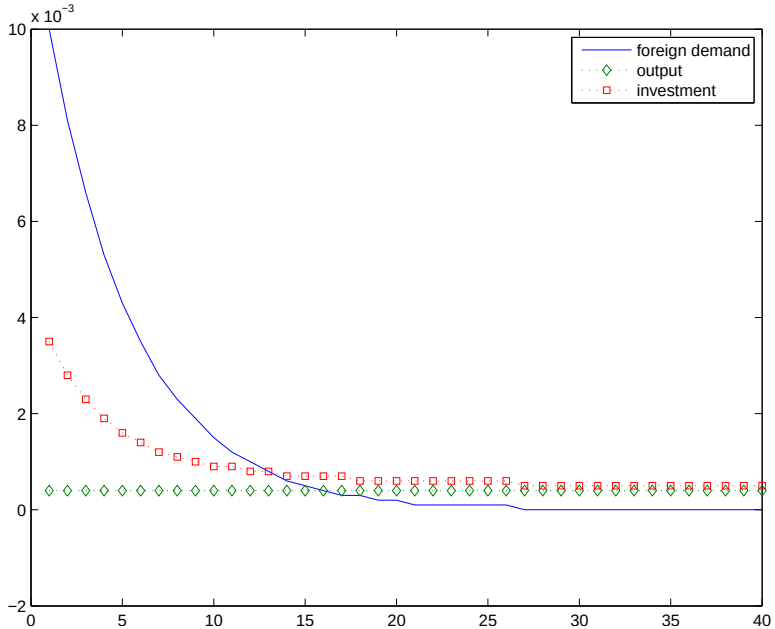


Source: Authors' computations

Figure: Adjustment Path to Foreign Demand Shock: Chile



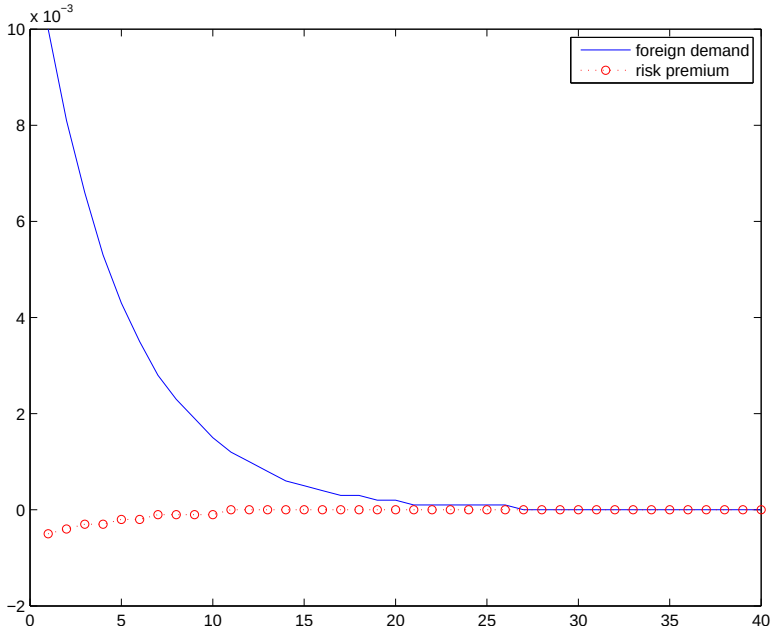
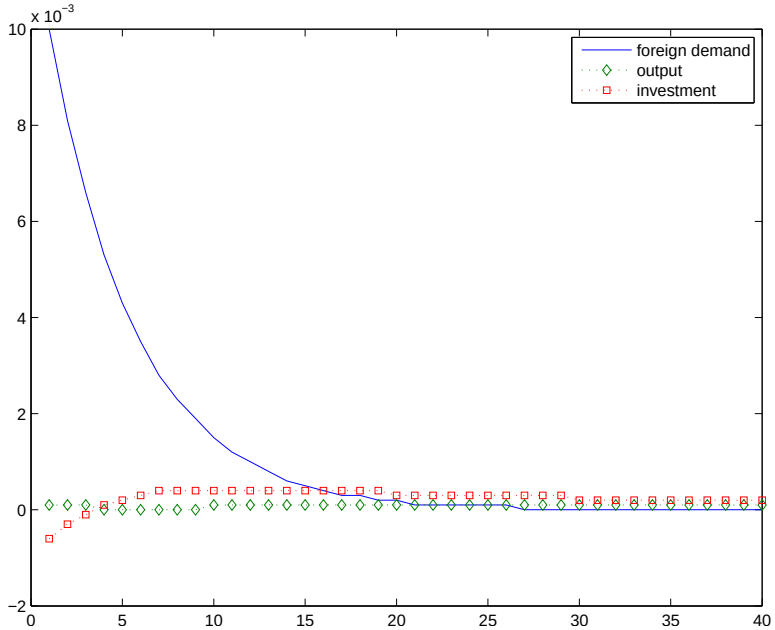
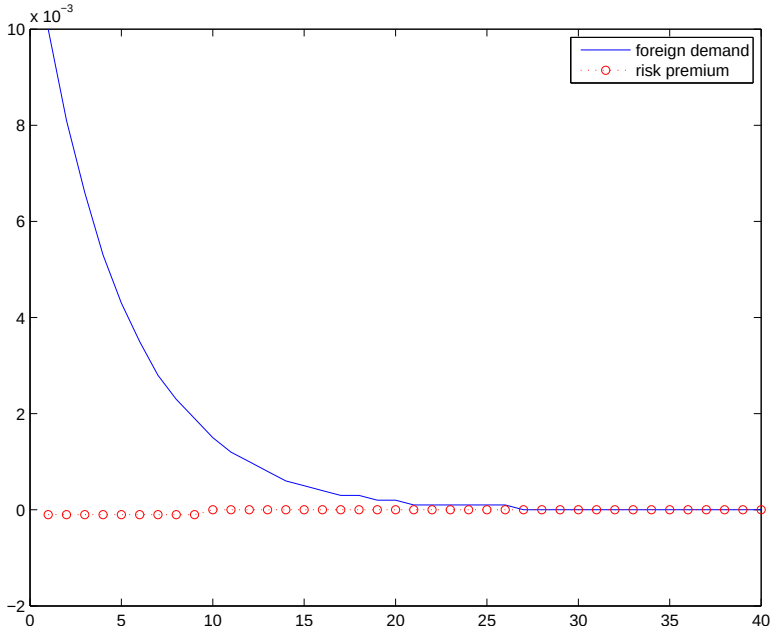


Figure: Adjustment Path to Foreign Demand Shock: Australia





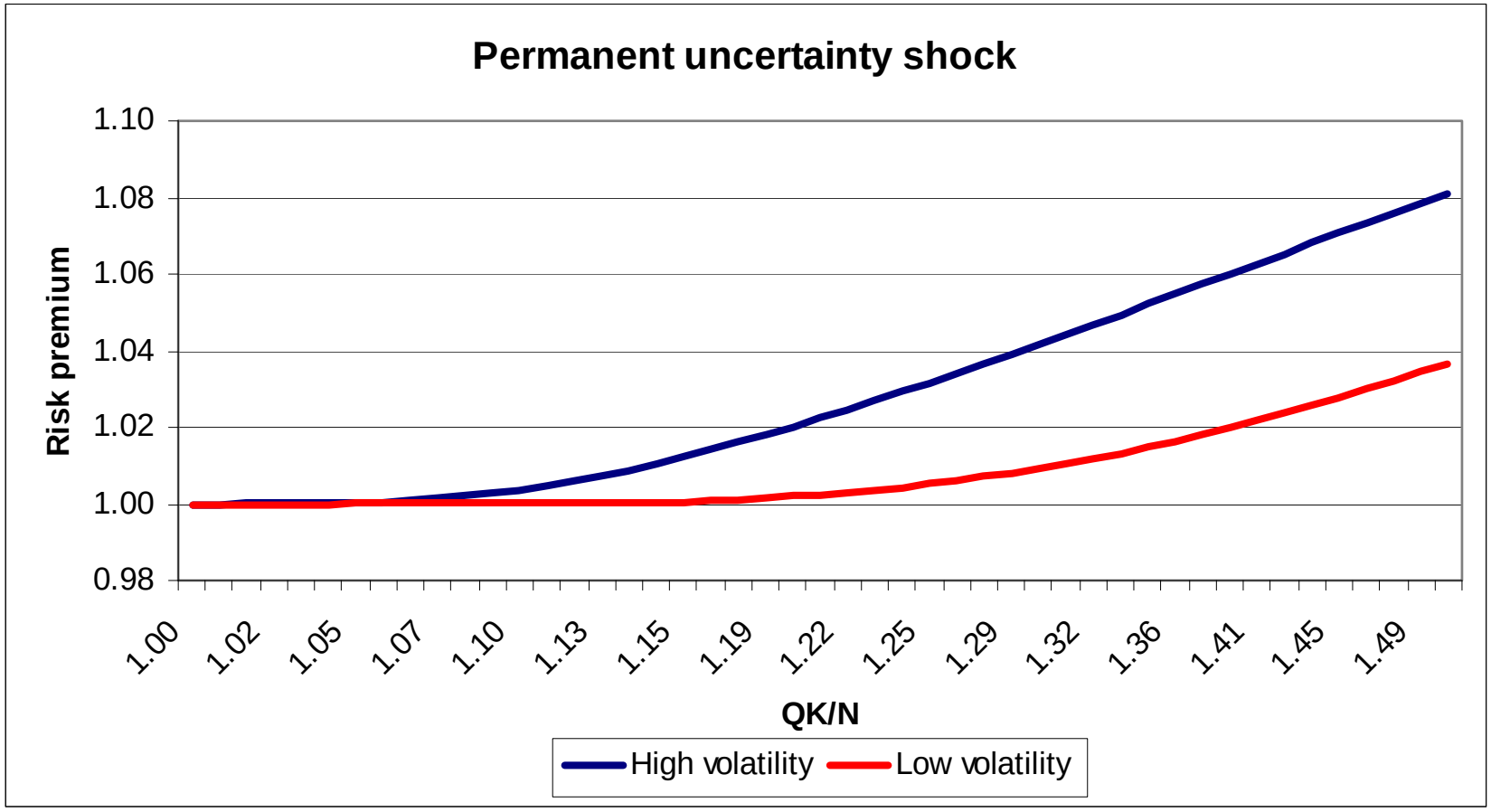
	Australia		**Chile**		**Canada**	**Mexico**
	Model	Data	Model	Data	Data	Data
Consumption	**1.05**	0.65	**0.91**	0.85	0.55	0.85
Investment	**9.22**	2.96	**12.18**	2.11	2.41	2.10
Ex. Rate	**6.54**	3.57	**7.51**	2.30	2.63	2.24
Risk Prem	**0.45**	0.28	**0.98**	0.47	0.18	0.83
Risk Prem*		0.31		1.14	0.19	0.80

	Australia		**Chile**		**Canada**	**Mexico**
	Model	Data	Model	Data	Data	Data
Consumption	**0.56**	0.67	**0.79**	0.92	0.59	0.33
Investment	**0.25**	0.73	**0.53**	0.81	0.70	0.44
Ex. Rate	**0.09**	0.46	**0.43**	0.61	0.24	-0.02
Risk Prem	**-0.21**	0.01	**-0.51**	-0.21	0.39	-0.52
Risk Prem*		0.23		-0.59	0.31	-0.32

Uncertainty shocks

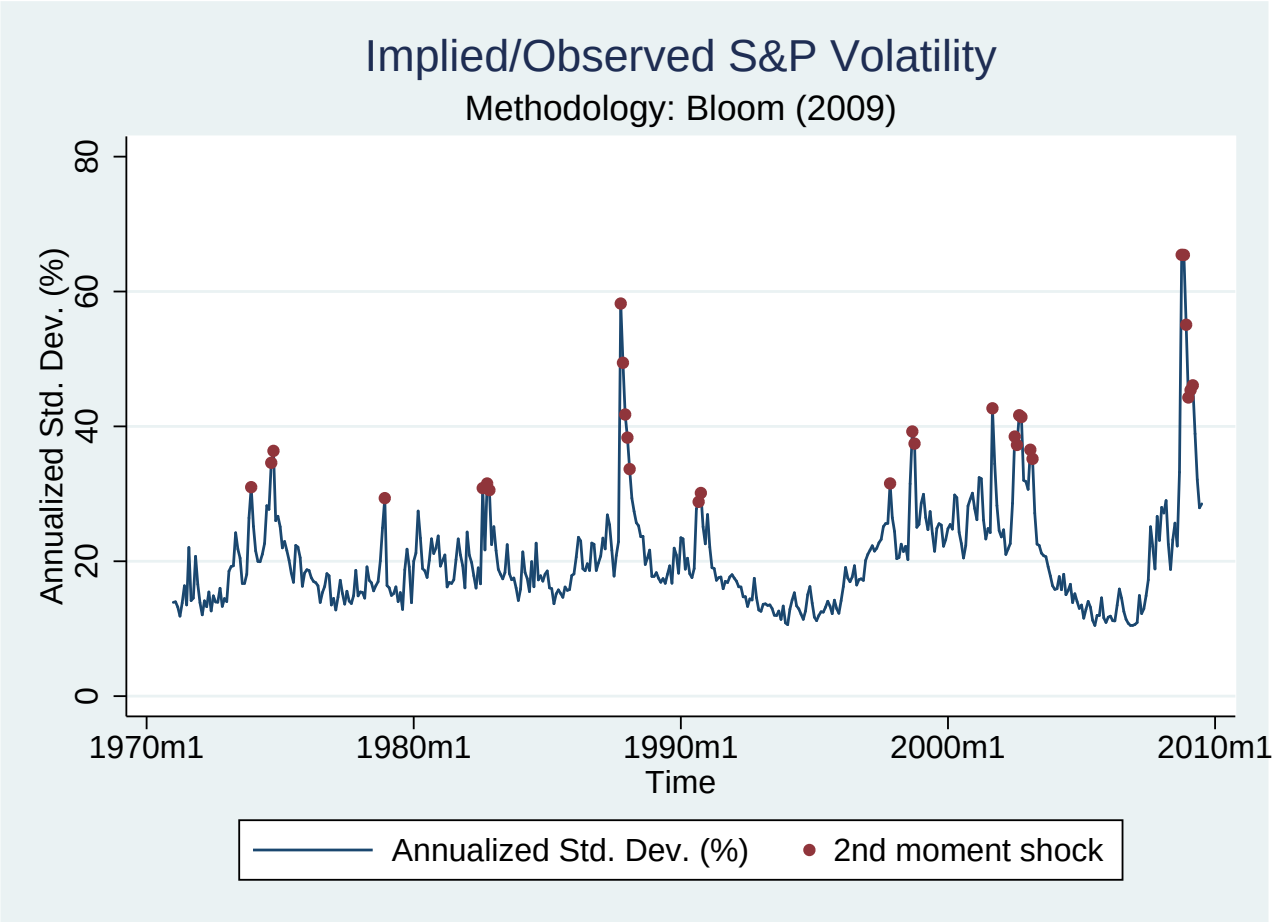
- Uncertainty plays a key role in recent financial turmoil.
- But most in general, uncertainty affects risk premium in a business cycle frequency
- Considering role of uncertainty is important to understand role of financial frictions (Christiano et al)
- We use Bernanke, Gertler, Gilchrist (1999) to introduce uncertainty in a financial accelerator model.

Permanent uncertainty shock



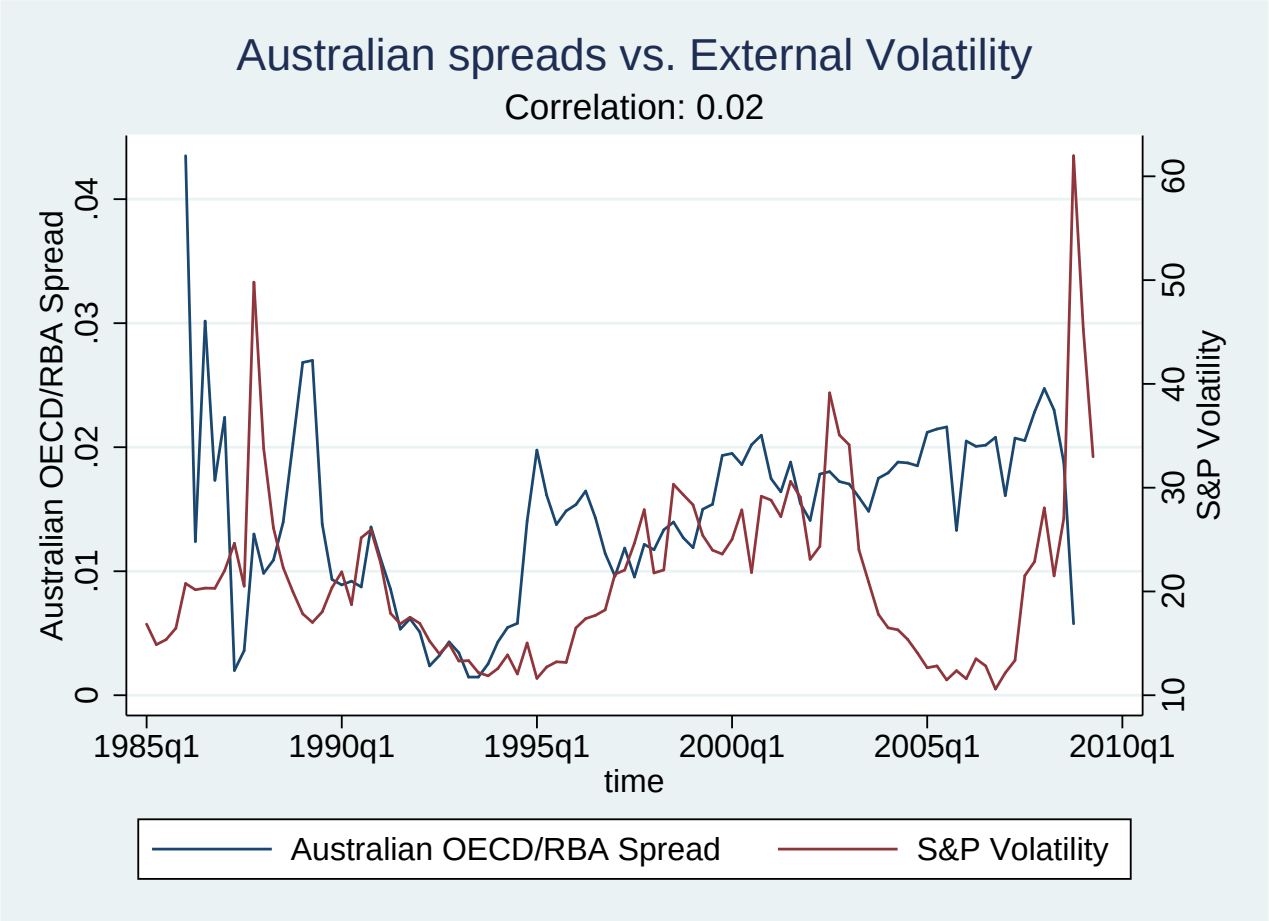
We aim at modelling the dynamics derived of a fully exogenous shock: Bloom's Index

- 9/11
- Subprime



Source: Authors' computations

Links to Uncertainty: Spreads and Volatility



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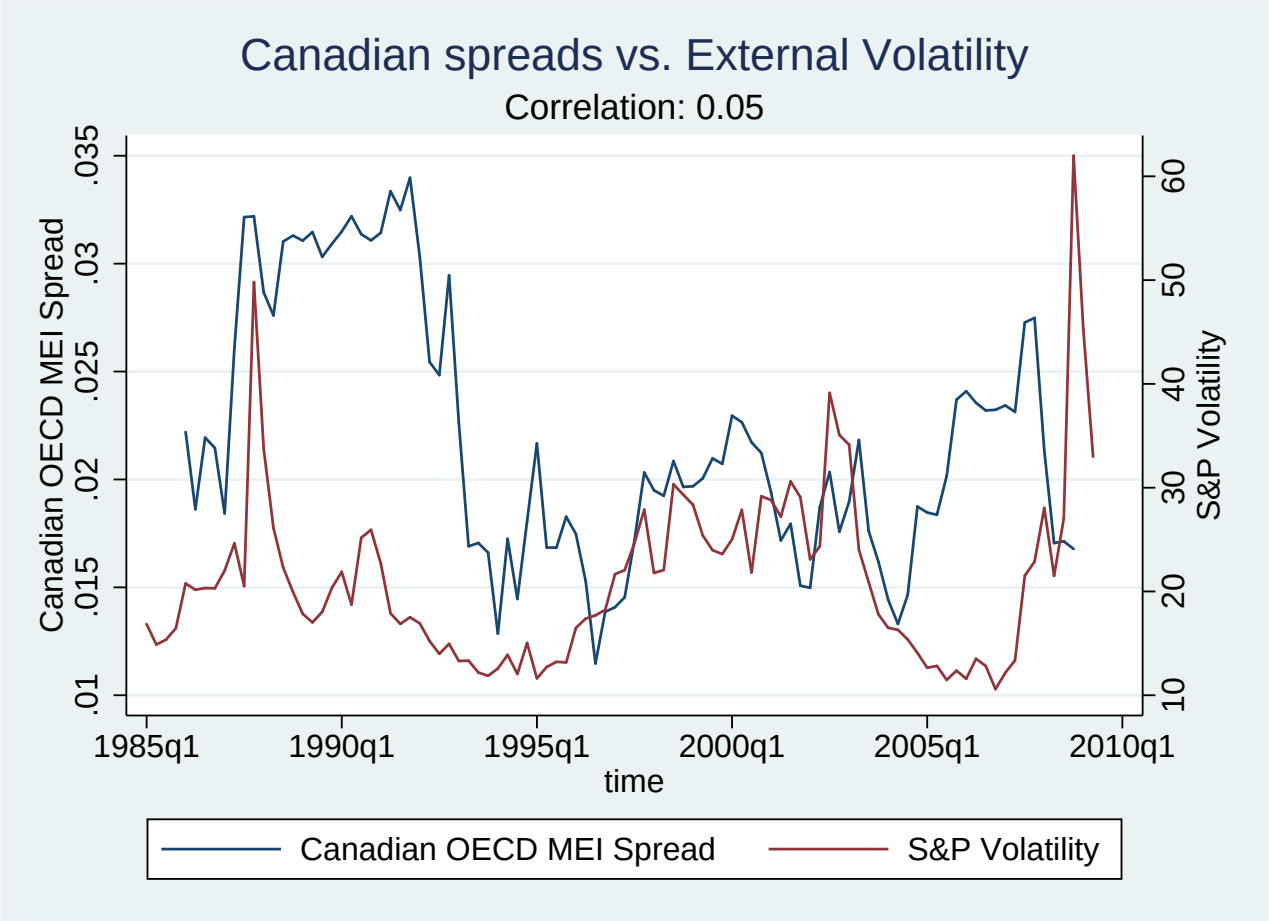

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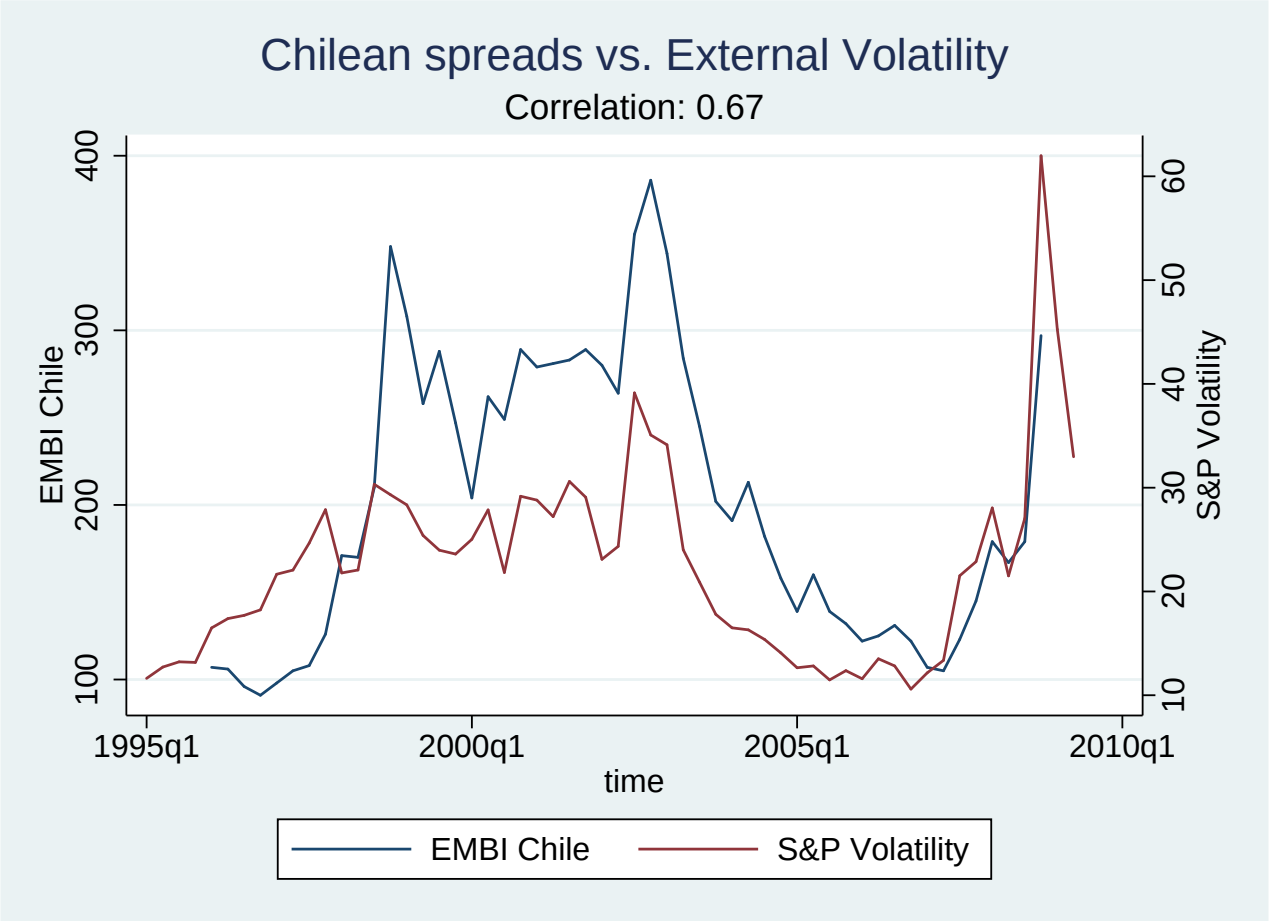

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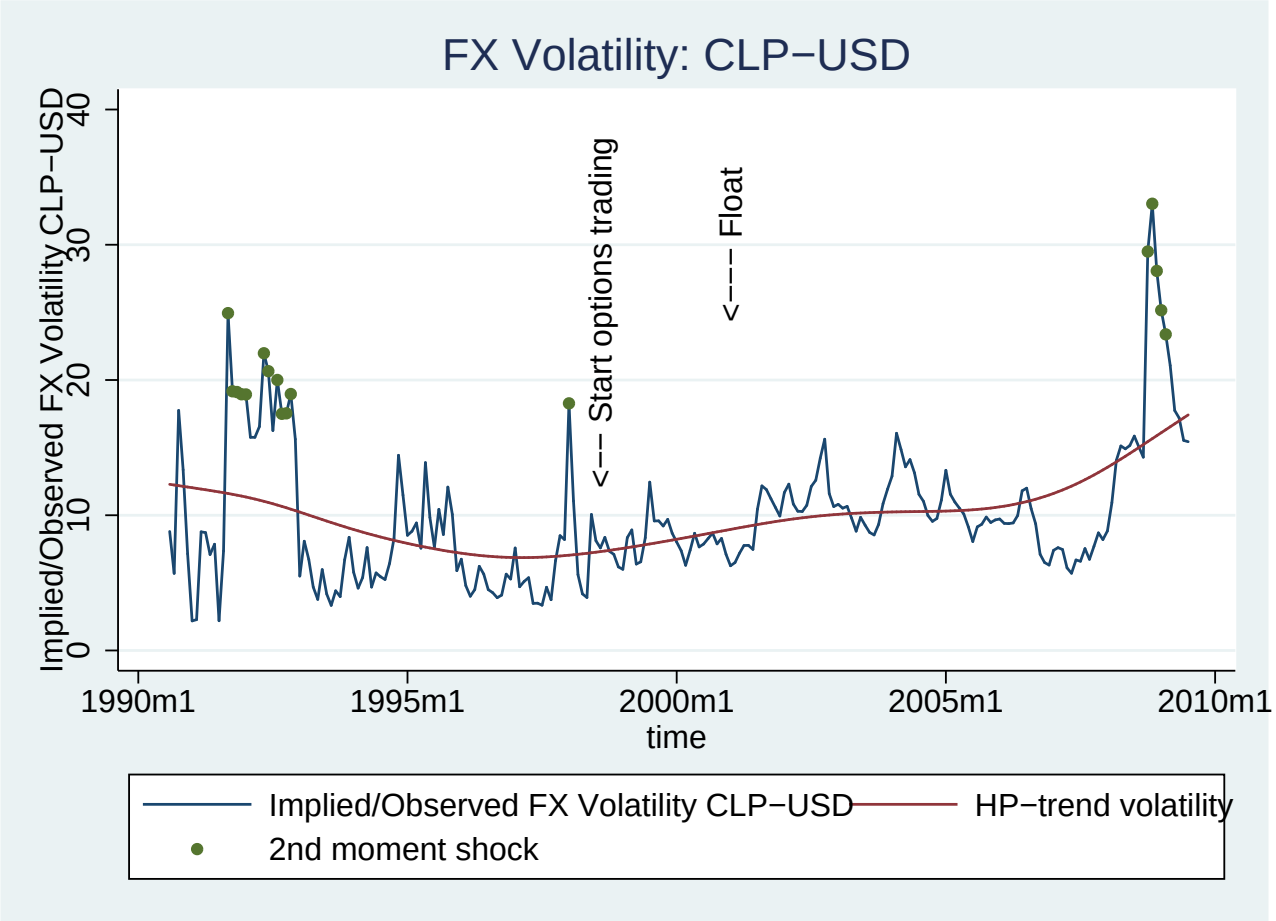

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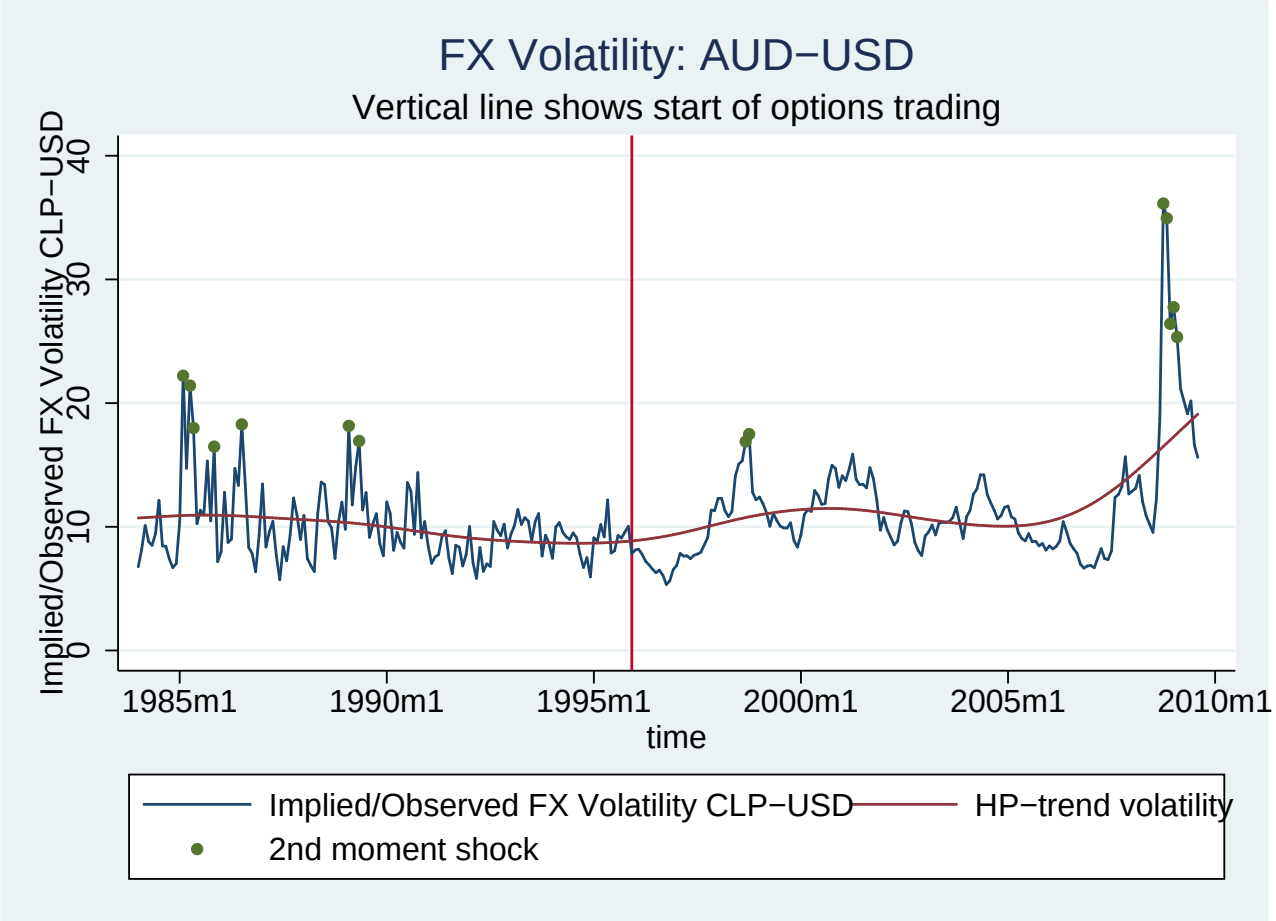

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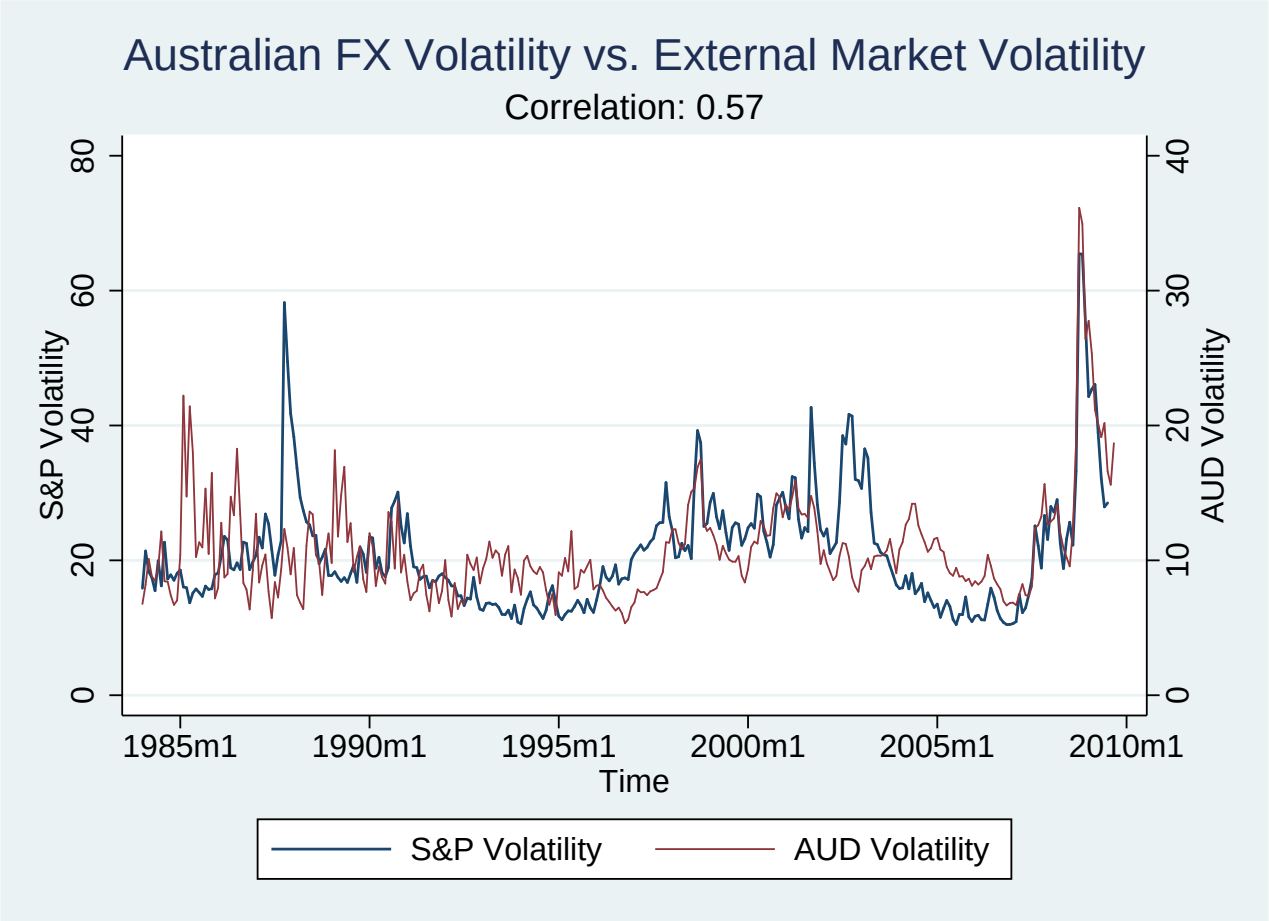

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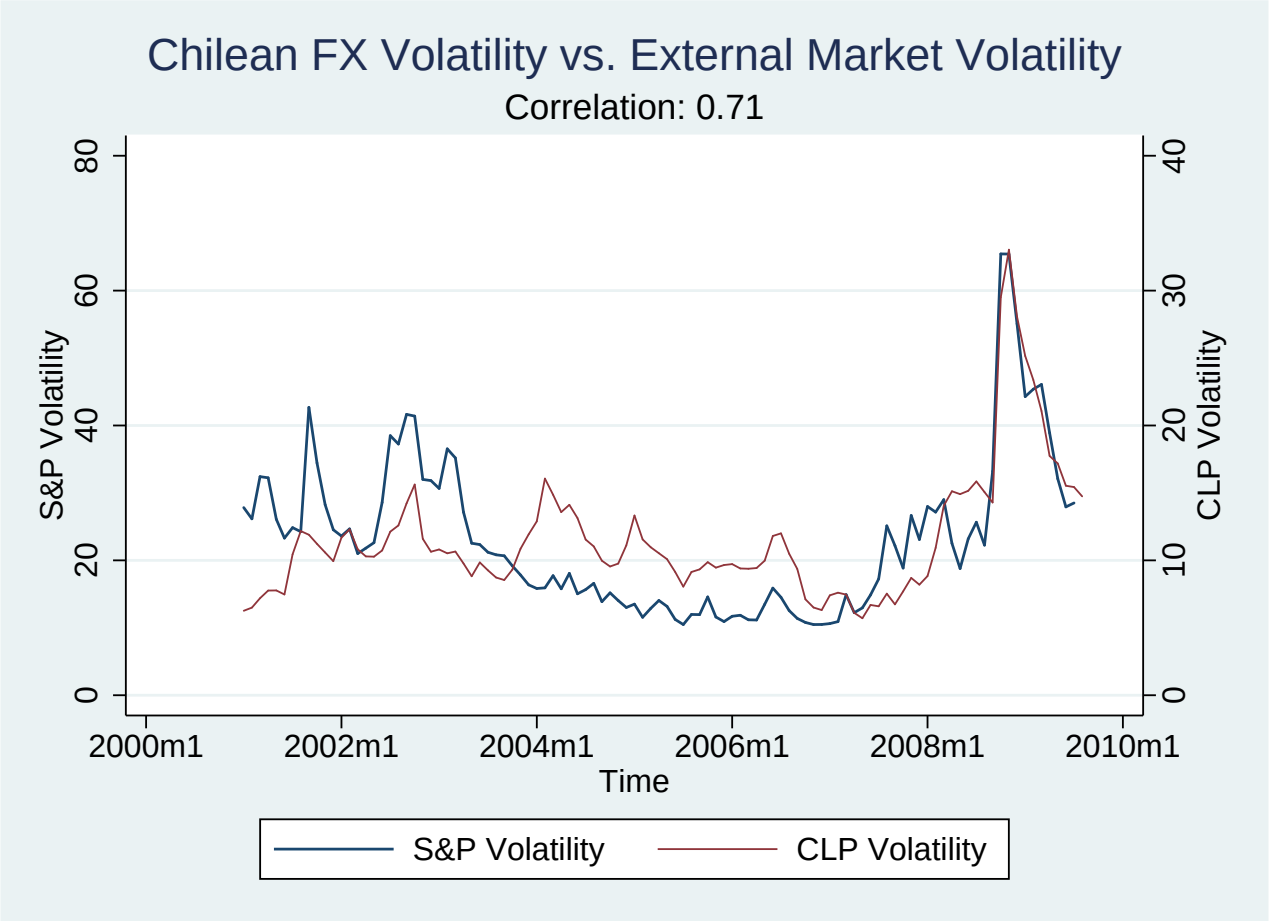

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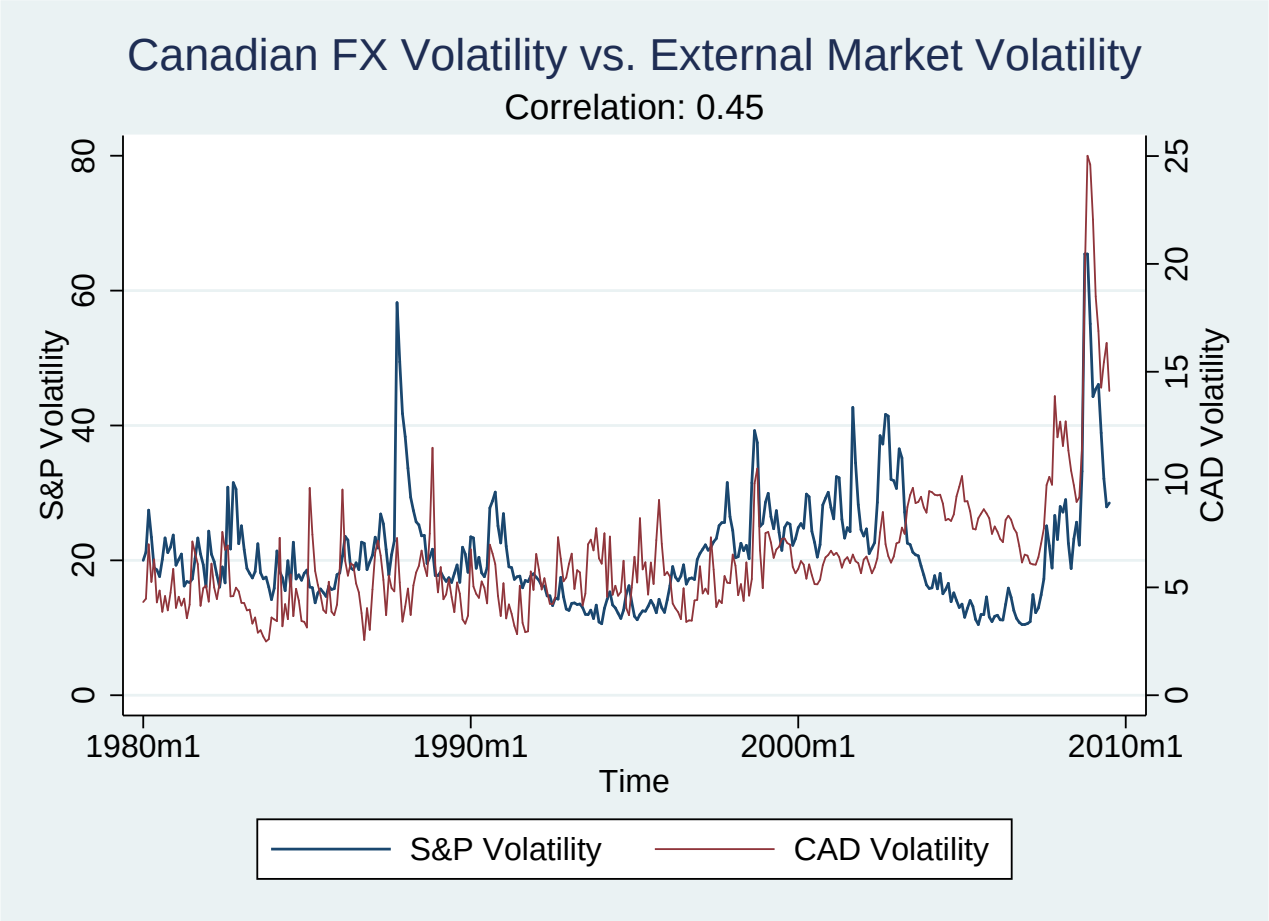

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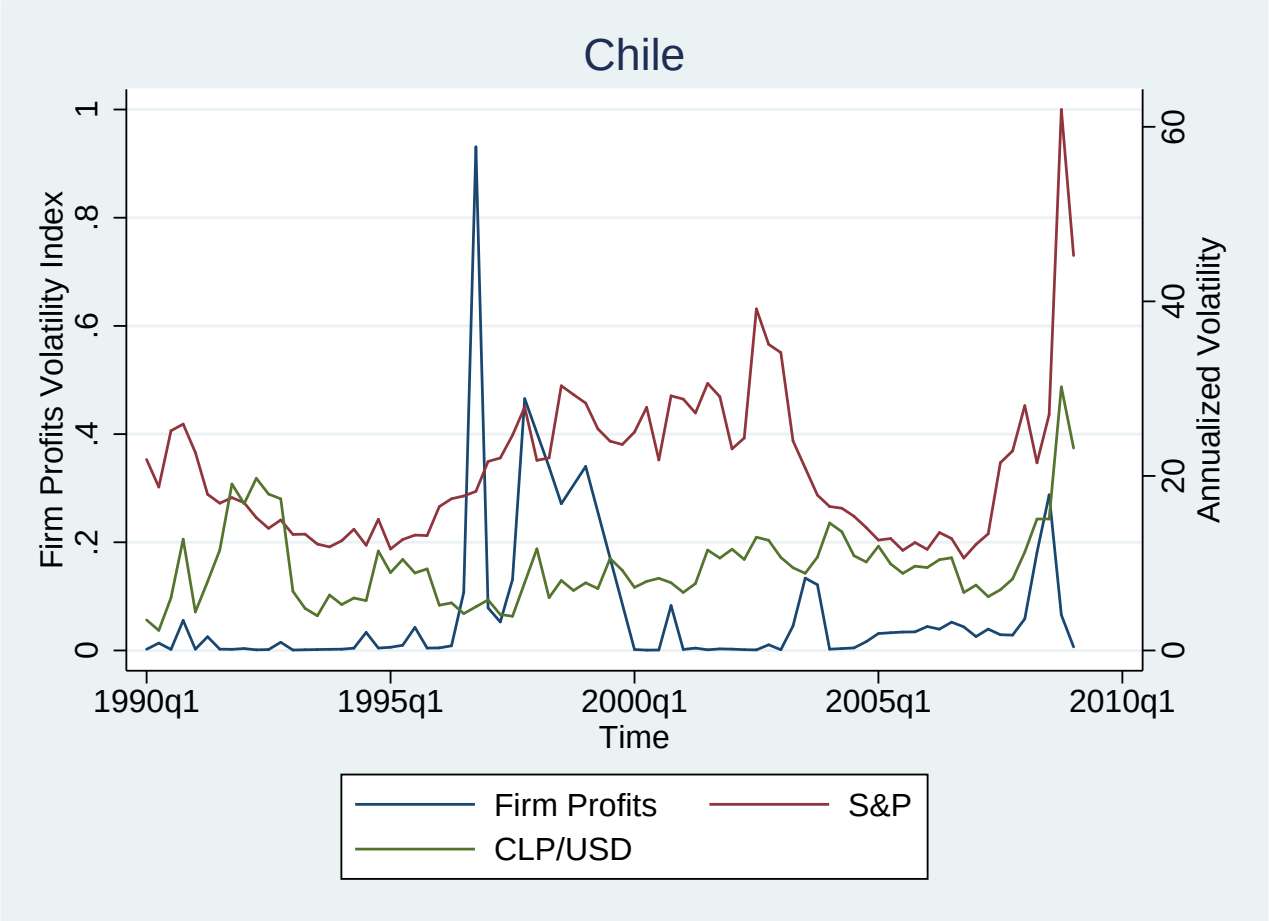

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